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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/205,094	12/03/1998	HIROYUKI OKADA	018656-045	8215

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EXAMINER

VILLECCO, JOHN M

ART UNIT	PAPER NUMBER
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2612

DATE MAILED: 02/12/2003

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Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary

Application No.

09/205,094

Applicant(s)

OKADA, HIROYUKI

Examiner

John M. Villecco

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 4,5 and 13 is/are allowed.
- 6) ☒ Claim(s) 1-3,6,7,9-12,14 and 15 is/are rejected.
- 7) ☒ Claim(s) 8 and 16 is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 03 December 1998 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☒ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s) ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other:

DETAILED ACTION

Drawings

1. Figures 11 and 12 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: **S65, S68, S12, S7, S8, and S54**. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.
3. The drawings are objected to because in Figure 7 the words “expantion” and “realigne” are misspelled. It appears as if applicant meant to use the words – expansion – and the word – realign –, respectively. A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person

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having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-3, 6-7, 9-12, and 14-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rashkovskiy et al. (U.S. Patent No. 6,181,376) in view of Konishi (U.S. Patent No. 4,574,319).

6. Regarding *claim 1*, Rashkovskiy discloses a method of determining the missing color values for pixels in a color filter array. Rashkovskiy discloses an image pickup device equipped with a color filter array (13) which is inherently located so as to correspond to individual pixels that perform color separation of the image. Since the camera is a digital camera the camera inherently includes an A/D converter. The system acquires the "color filter image" (16), stores it in memory (18) and transfers the image to the computer system (24) for interpolation. The camera further includes a data processor that interpolates for missing pixels of each color and a display device (30) for viewing the image that has been interpolated.

Rashkovskiy, however, fails to disclose that the system operates to record, together with the image data, data regarding the arrangement of the color filter. Konishi, on the other hand, teaches that it is well known in the art to save information regarding the arrangement of the color filter array along with the image data. See column 4, line 57 to column 5, line 26. When the image is reproduced the data is used for compensation in image reproduction (col. 6, lines 10-12). By storing the additional information onto the recorder (9) the processing can be postponed to be done by a more powerful processor and memory can be saved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send filter data along with the image in Rashkovskiy so that proper processing can be carried out by the computer system (24) and different color filters can be used.

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7. As for *claim 2*, Rashkovskiy discloses that the recording medium (10) is releaseably fitted onto the camera. Furthermore, Rashkovskiy teaches that the recording medium could be a magnetic disk. It is the opinion of the examiner that the magnetic disk can be interpreted as a memory card.

8. Regarding *claim 3*, Rashkovskiy discloses the use of the interface (20) of the digital camera (10) for transmitting the “raw” image data to the computer system (24). When used in combination with Konishi, it would obvious send both the image data and the filter data.

9. With regard to *claim 6*, Rashkovskiy discloses a method of determining the missing color values for pixels in a color filter array. Rashkovskiy discloses an image pickup device equipped with a color filter array (13) which is inherently located so as to correspond to individual pixels that perform color separation of the image and sensors (14) for picking up the image. Since the camera is a digital camera the camera inherently includes an A/D converter. The system acquires the “color filter image” (16), stores it in memory (18) and transfers the image to the computer system (24) for interpolation. The memory (18) serves as the first site and the computer memory (28) serves as the second site. The camera further includes a data processor that interpolates for missing pixels of each color and an interface (20) for outputting the image data to the computer system (24).

Rashkovskiy, however, fails to disclose that the system operates to record, together with the image data, data regarding the arrangement of the color filter. Konishi, on the other hand, teaches that it is well known in the art to save information regarding the arrangement of the color filter array along with the image data. See column 4, line 57 to column 5, line 26. When the image is reproduced the data is used for compensation in image reproduction (col. 6, lines 10-

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12). By storing the additional information onto the recorder (9) the processing can be postponed to be done by a more powerful processor and memory can be saved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send filter data along with the image in Rashkovskiy so that proper processing can be carried out by the computer system (24) and different color filters can be used.

10. Regarding *claim 7*, Rashkovskiy discloses that the system generates color according to a Bayer filter array pattern of red, green, and blue. The system operates to generate red, green and blue pixel data for each of the photosites. See column 4, line 62 to column 5, line 15.

11. As for *claim 9*, Official Notice is taken as to the fact that it is well known in the art to compress image data before transferring it to an external site. Compressing an image conserves both memory and bandwidth when transmitting. Therefore, it would have been obvious to compress the image before transmitting the image so that memory is conserved and bandwidth is reduced.

12. With regard to *claim 10*, Rashkovskiy discloses a method of determining the missing color values for pixels in a color filter array. Rashkovskiy discloses an image pickup device equipped with a color filter array (13) which is inherently located so as to correspond to individual pixels that perform color separation of the image. Since the camera is a digital camera the camera inherently includes an A/D converter. The system acquires the "color filter image" (16), stores it in memory (18) and transfers the image to the computer system (24) for interpolation. The camera further includes a data processor that interpolates for missing pixels of each color and a display device (30) for viewing the image that has been interpolated

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Rashkovskiy, however, fails to disclose that the system operates to record, together with the image data, data regarding the arrangement of the color filter. Konishi, on the other hand, teaches that it is well known in the art to save information regarding the arrangement of the color filter array along with the image data. See column 4, line 57 to column 5, line 26. When the image is reproduced the data is used for compensation in image reproduction (col. 6, lines 10-12). By storing the additional information onto the recorder (9) the processing can be postponed to be done by a more powerful processor and memory can be saved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send filter data along with the image in Rashkovskiy so that proper processing can be carried out by the computer system (24) and different color filters can be used.

13. *Claim 11* is considered substantively equivalent to claim 2. Please see the discussion of claim 2 above.

14. *Claim 12* is considered substantively equivalent to claim 3. Please see the discussion of claim 3 above.

15. Regarding *claim 14*, Rashkovskiy discloses a method of determining the missing color values for pixels in a color filter array. Rashkovskiy discloses an image pickup device equipped with a color filter array (13) which is inherently located so as to correspond to individual pixels that perform color separation of the image and sensors (14) for picking up the image. Since the camera is a digital camera the camera inherently includes an A/D converter. The system acquires the "color filter image" (16), stores it in memory (18) and transfers the image to the computer system (24) for interpolation. The memory (18) serves as the first site and the computer memory (28) serves as the second site. The camera further includes a data processor

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that interpolates for missing pixels of each color and an interface (20) for outputting the image data to the computer system (24).

Rashkovskiy, however, fails to disclose that the system operates to record, together with the image data, data regarding the arrangement of the color filter. Konishi, on the other hand, teaches that it is well known in the art to save information regarding the arrangement of the color filter array along with the image data. See column 4, line 57 to column 5, line 26. When the image is reproduced the data is used for compensation in image reproduction (col. 6, lines 10-12). By storing the additional information onto the recorder (9) the processing can be postponed to be done by a more powerful processor and memory can be saved. Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to send filter data along with the image in Rashkovskiy so that proper processing can be carried out by the computer system (24) and different color filters can be used.

16. As for *claim 15*, Rashkovskiy discloses that each pixel generates data relating to one of a plurality of colors and when interpolated each pixel site has data relating to each of the plurality of different colors.

Allowable Subject Matter

17. Claims 8 and 16 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

18. The following is a statement of reasons for the indication of allowable subject matter:

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Regarding *claims 8 and 16*, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest performing a first interpolation at a first site to generate complete image data and transmitting the complete image data to a second site and reinterpolating the first set of complete color data at the second site in accordance with the stored information using a different interpolation process to produce a second set of complete color data.

19. Claims 4-5 and 13 are allowed.

20. The following is a statement of reasons for the indication of allowable subject matter:

Regarding *claims 4 and 13*, the primary reason for indication of allowable subject matter is that the prior art fails to teach or reasonably suggest an output unit that outputs to an external device the complete pixel data and the filter alignment data recorded on the recording device.

Claim 5 is allowable based upon its dependency upon claim 4.

21. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

- **Kikuchi (Japanese Pub. No. 09-168157 A)** discloses an image pickup device that stores the arrangement of the color filter along with the image data.
- **Sarbadhikari et al. (U.S. Patent No. 5,477,264)** teaches a system that stores image interpolation algorithms on the same storage medium as the image files.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

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or faxed to:

(703) 308-6306 (For either formal or informal communications intended for entry. For informal or draft communications, please label **"PROPOSED"** or **"DRAFT"**)

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington VA, Sixth Floor (Receptionist).

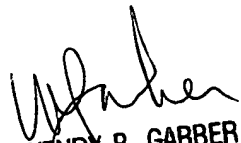
Any inquiry concerning this communication or earlier communications from the examiner should be directed to John M. Villecco whose telephone number is (703) 305-1460. The examiner can normally be reached on Monday through Thursday from 7:00 am to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Wendy Garber, can be reached on (703) 305-4929. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9314.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the customer service desk whose telephone number is (703) 306-0377.



JMV
1/28/03



WENDY R. GARBER
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